

Response
Application No. 10/702,430
Attorney Docket No. 032086

REMARKS

Claims 1-5 are pending. Claims 1, 2, 4 and 5 are herein amended.

Information Disclosure Statement

The Examiner stated that the listing of references in the specification is not a proper information Disclosure Statement. The Specification cites a reference on page 1, paragraph 4 (“DNA Analyses and Optical Technologies” by Toru Makino and Kyoichi Kano in “Optical Technologies in Life Sciences” of the “KOGAKU (Japanese Journal of Optics)”). This reference is listed in the IDS dated November 7, 2003 and was acknowledged by the Examiner.

On page 3, paragraph 5, the Specification cites Japanese Patent Application 2001-311690. An Information Disclosure Statement has been filed with this Amendment listing Japanese Application 2001-311690 and enclosing the document including an English abstract of the document. Applicants request the Examiner to consider this reference.

Oath/Declaration

The Examiner stated that the declaration is defective because it does not identify a state or foreign country of residence for each inventor. The Declaration provides that the inventors are from the city of Tokyo. An Application Data Sheet has been submitted with this Amendment identifying that each inventor is from Japan. Withdrawal of the objection is requested.

Abstract

The Abstract has been amended to conform with language and format requirements.

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Claim Rejections - 35 U.S.C. § 112

Claims 1-5 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. In claim 1, the Examiner stated that the claim does not set forth any steps. Claim 1 has been amended to recite an active and positive method step.

Claim 2 has been amended for clarification.

Claims 4 and 5 have been amended into method form.

Withdrawal of the rejection is requested.

Claim Rejections - 35 U.S.C. § 101

Claims 1 and 3 were rejected under 35 U.S.C. § 101 because the claimed recitation is an improper definition of a process. Claim 1 has been amended to recite an active and positive method step. Withdrawal of the rejection is requested.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Chang* (U.S. Patent Application Publication No. 2004/64053); and claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Chang*, and further in view of *Davis* (U.S. Patent 5,620,842).

The present invention recites a detector calibration method. The method includes measuring and calibrating a light source by a power meter with traceability to the national standard of optical power. Then the power meter is replaced with a photodetector. The same light from the light source is measured by the photodetector. Next, the output from the photodetector is calibrated based on the light power calibrated to the power meter.

The present invention also recites a power measuring method using the detector calibration method for measuring the power of and the number of molecules in a fluorescent object.

Applicants respectfully submit that *Chang* does not disclose “calibrating **the power** and output signals of each photodetector device” and “wherein ... values of **optical power** can be measured with traceability to the national standard directly from the output signals of the detector pixels” as recited in amended claim 1 (emphasis added).

Chang discloses a calibration method which uses a lamp to calibrate a photo diode. The lamp is traceable for NIST. However, the calibration method of *Chang* calibrates a quantity of photometry of a photo diode and not a quantity of light power. In other words, light power cannot be calibrated from the lamp (a standard light source). The device of the present invention, which provides a standard for light power, is a light power meter (a calorie meter). Since light power cannot be calibrated in the method of *Chang*, the method of *Chang* cannot ensure traceability of light power to the national standard. Therefore, *Chang* does not disclose the elements as recited in claim 1.

Regarding claim 5, Applicants respectfully submit that *Chang* in view of *Davis* does not disclose “calculating the power or the number of molecules of a fluorescent object using the output signals of the detector which detects fluorescent power from the fluorescent object.”

The measurement method of the present invention can directly count the number of fluorescence molecules by using the absolute quantity of light and the quantity of fluorescence

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per molecule. The measurement method of the present invention can count even an extremely small number of fluorescence molecules.

Davis discloses a method of determining the number of molecules in a fluorescent object by counting the number of beads using flow-cytometry. The method of *Davis* only supposes a result of the number of fluorescence molecules that stick to the beads. *Davis* does not disclose how the number of fluorescence molecules on the beads is detected.

Ordinarily, solution level of a fluorescence molecule is detected by measuring absorption of ultraviolet rays. However, this method cannot count the number of molecules of fluorescence. The method can only measure the solution level indirectly. This method disclosed in *Davis* can measure thick level solution, but cannot measure a thin level of solution. Therefore, *Chang* in view of *Davis* does not disclose the elements as recited in amended claim 5.

Accordingly, withdrawal of the rejection of claims 1-5 is hereby solicited.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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Enclosure: Supplemental Application Data Sheet